

App. Serial No.: 09/935,403

Atty. Docket No.: 0011-046

IN THE CLAIMS

Please amend the claims as follows:

1. (currently amended) An LCD array ~~having a metal circuitry layer separated from a plurality of imaging surfaces by an insulating layer~~, comprising:

a semiconductor substrate;

a metal circuitry layer formed above the semiconductor substrate;

an insulating layer formed above the metal circuitry layer;

a plurality of reflective imaging surfaces formed above the insulating layer; and

a plurality of vias between the metal layer and each of the imaging surfaces; and

wherein each of the vias passes through the insulating layer; and

the vias of each imaging surface occupy no more than 25% of the surface area of the imaging surface.

2. (original) The LCD array of claim 1, wherein:

each of the vias is an electrical connection between the metal layer and the imaging surfaces.

3. (original) The LCD array of claim 1, wherein:

the imaging surfaces are mirrors.

4. (original) The LCD array of claim 1, wherein:

the quantity of vias is two per imaging surface.

5. (previously amended) The LCD array of claim 1, wherein:

the vias are uniformly distributed along both a first direction and a second direction of the LCD array.

6. (previously amended) The LCD array of claim 1, wherein:

the vias underlying each imaging surface are equidistant from a first axis of the respective imaging surface.

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7. (previously amended) The LCD array of claim 6, wherein:

the vias underlying each imaging surface are equidistant from a second axis of the respective imaging surface.

8. (previously amended) The LCD array of claim 1, wherein:

the vias are grouped near a center of each of the imaging surfaces; and
the vias are disposed on at least one of an X axis and a Y axis of the imaging surfaces.

9. (currently amended) A method for positioning vias under mirrors of an LCD array, comprising:

placing a plurality of vias under each of a plurality of mirrors such that the vias are evenly spaced from the center of each respective mirror with respect to both an X axis and a Y axis of the respective mirror; and wherein

the vias of each mirror occupy no more than 25% of the surface area of the mirror.

10. (previously amended) The method for positioning vias under mirrors of an LCD array of claim 9, and further including:

grouping the vias near the center of each respective mirror on at least one of the X axis and the Y axis of the respective mirror.

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11. (currently amended) In an LCD array ~~having a plurality of imaging surfaces separated from a metal layer by an insulating layer~~, an improvement comprising:

providing a semiconductor substrate;

forming a metal layer above the semiconductor substrate;

forming an insulating layer above the metal layer;

forming a plurality of reflective imaging surfaces above the insulating layer; and

providing a plurality of vias between the metal layer and each of the imaging surfaces such that the vias are evenly distributed on the imaging surfaces and pass through the insulating layer; and wherein

the vias of each imaging surface occupy no more than 25% of the surface area of the imaging surface.

12. (previously amended) The LCD array of claim 11, wherein:

the vias are symmetrically arrayed about at least one of an X axis and a Y axis of the LCD array.

13. (previously amended) The LCD array of claim 11, wherein:

the quantity of vias associated with each imaging surface is two; and

the vias are symmetrically arrayed about at least one of an X axis and a Y axis of the LCD array; and

the vias are grouped together near the center of the imaging surface on at least one of the X axis and the Y axis of the imaging surface.

14. (original) The LCD array of claim 11, wherein:

each of the vias is an electrical conductor between the metal layer and one of the imaging surfaces.

15. (previously amended) The LCD array of claim 11, wherein:

the vias are symmetrically arrayed about a first axis of the LCD array.

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16. (previously amended) The LCD array of claim 15, wherein:
the vias are symmetrically arrayed about a second axis of the LCD array.
17. (previously amended) The LCD array of claim 15, wherein:
the vias of each imaging surface are grouped together about a center of each respective imaging surface; and
the vias of each imaging surface are aligned along an axis of each respective imaging surface, the axes of the imaging surfaces being parallel to one another.
18. (previously amended) The LCD array of claim 11, wherein:
two of the vias are positioned near the center of each of the imaging surfaces along a direction parallel to at least one axis of the LCD array.
19. (previously amended) The LCD array of claim 11, wherein:
two of the vias are symmetrically arrayed about an axis parallel to at least one of an X axis and a Y axis of the LCD array on each of the imaging surfaces.
20. (previously amended) The LCD array of claim 11, wherein:
two of the vias are disposed along an axis parallel to a Y axis of the LCD array on each of the imaging surfaces.

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21. (currently amended) An LCD array ~~having a metal circuitry layer separated from a plurality of imaging surfaces by an insulating layer~~, comprising:

a semiconductor substrate;

a metal circuitry layer formed above the semiconductor substrate;

an insulating layer formed above the metal circuitry layer;

a plurality of reflective imaging surfaces formed above the insulating layer; and

a plurality of vias between the metal layer and each of the imaging surfaces; and wherein
wherein the vias are uniformly distributed on both an X axis and a Y axis of the LCD array

the vias of each imaging surface are arranged in a group;

the groups of vias are evenly spaced along an X direction of the LCD array;

the groups of vias are evenly spaced along a Y direction of the LCD array; and

the vias of each imaging surface occupy no more than 25% of the surface area of the
imaging surface.

22. (currently amended) An LCD array ~~having a metal circuitry layer separated from a plurality of imaging surfaces by an insulating layer~~, comprising:

a semiconductor substrate;

a metal circuitry layer formed above the semiconductor substrate;

an insulating layer formed above the metal circuitry layer;

a plurality of reflective imaging surfaces formed above the insulating layer; and

a plurality of vias between the metal layer and each of the imaging surfaces; and

wherein the vias are equidistant from an X axis of each of the imaging surfaces; and

the vias of each imaging surface occupy no more than 25% of the surface area of the
imaging surface.

23. (previously added) The LCD array of claim 22, wherein:

the vias are equidistant from a Y axis of each of the imaging surfaces.

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24. (currently amended) In an LCD array ~~having a plurality of imaging surfaces separated from a metal layer by an insulating layer~~, an improvement comprising:

providing a semiconductor substrate;

forming a metal layer above the semiconductor substrate;

forming an insulating layer above the metal layer;

forming a plurality of reflective imaging surfaces above the insulating layer; and

providing a plurality of vias between the metal layer and each of the imaging surfaces such

that the vias are evenly distributed on the imaging surfaces; and

wherein the quantity of vias associated with each imaging surface is two;

the vias are symmetrically arrayed on at least one of an X axis and a Y axis; and

the vias are grouped together near the center of the imaging surface on at least one of the X axis and the Y axis.

25. (currently amended) In an LCD array ~~having a plurality of imaging surfaces separated from a metal layer by an insulating layer~~, an improvement comprising:

providing a semiconductor substrate;

forming a metal layer above the semiconductor substrate;

forming an insulating layer above the metal layer;

forming a plurality of reflective imaging surfaces above the insulating layer; and

providing a plurality of vias between the metal layer and each of the imaging surfaces

such that the vias are evenly distributed on the imaging surfaces; and

wherein the vias are symmetrically arrayed along a first axis of the LCD array; [[and]]

the vias are symmetrically arrayed along a second axis of the LCD array; and

the vias of each imaging surface occupy no more than 25% of the surface area of the imaging surface.

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26. (currently amended) In an LCD array ~~having a plurality of imaging surfaces separated from a metal layer by an insulating layer~~, an improvement comprising:

providing a semiconductor substrate;

forming a metal layer above the semiconductor substrate;

forming an insulating layer above the metal layer;

forming a plurality of reflective imaging surfaces above the insulating layer; and

providing a plurality of vias between the metal layer and each of the imaging surfaces

such that the vias are evenly distributed on the imaging surfaces; and wherein

the vias are symmetrically arrayed along a first axis of the LCD array;

the vias of each imaging surface are grouped together about a center of each respective

imaging surface; [[and]]

the vias of each imaging surface are aligned along an axis of each respective imaging

surface, the axes of the imaging surfaces being parallel to one another; and

the vias of each imaging surface occupy no more than 25% of the surface area of the

imaging surface.

27. (currently amended) In an LCD array ~~having a plurality of imaging surfaces separated from a metal layer by an insulating layer~~, an improvement comprising:

providing a semiconductor substrate;

providing a metal layer above the semiconductor substrate;

providing an insulating layer above the metal layer;

providing a plurality of reflective imaging surfaces above the insulating layer; and

providing a plurality of vias between the metal layer and each of the imaging surfaces such that the vias are evenly distributed on the imaging surfaces; and

wherein two of the vias are positioned near the center of each of the imaging surfaces along at least one axis of the LCD array; and

the vias of each imaging surface occupy no more than 25% of the surface area of the imaging surface.

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28. (currently amended) In an LCD array ~~having a plurality of imaging surfaces separated from a metal layer by an insulating layer~~, an improvement comprising:

providing a semiconductor substrate;

providing a metal layer above the semiconductor substrate;

providing an insulating layer above the metal layer;

providing a plurality of reflective imaging surfaces above the insulating layer; and

providing a plurality of vias between the metal layer and each of the imaging surfaces such that the vias are evenly distributed on the imaging surfaces; and

wherein two of the vias are symmetrically arrayed along at least one of an X axis and a Y axis of the LCD array on each of the imaging surfaces; and

the vias of each imaging surface occupy no more than 25% of the surface area of the imaging surface.

29. (currently amended) In an LCD array ~~having a plurality of imaging surfaces separated from a metal layer by an insulating layer~~, an improvement comprising:

providing a semiconductor substrate;

providing a metal layer above the semiconductor substrate;

providing an insulating layer above the metal layer;

providing a plurality of reflective imaging surfaces above the insulating layer; and

providing a plurality of vias between the metal layer and each of the imaging surfaces such that the vias are evenly distributed on the imaging surfaces; and

wherein two of the vias are symmetrically arrayed along a Y axis of the LCD array; and

the vias of each imaging surface occupy no more than 25% of the surface area of the imaging surface.

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30. (currently amended) An LCD array ~~having a metal circuitry layer separated from a plurality of imaging surfaces by an insulating layer~~, comprising:

a semiconductor substrate;

a metal circuitry layer formed above the semiconductor substrate;

an insulating layer formed above the metal circuitry layer;

a plurality of reflective imaging surfaces formed above the insulating layer; and

a plurality of vias between the metal layer and each of the imaging surfaces; and

wherein each of the vias ~~[[pass]]~~ passes through the ~~[[first]]~~ insulating layer under the

imaging surfaces; and

the vias of each imaging surface occupy no more than 25% of the surface area of the imaging surface.

31. (currently amended) An LCD array ~~having a metal circuitry layer separated from a plurality of imaging surfaces by an insulating layer~~, comprising:

a semiconductor substrate;

a metal circuitry layer formed above the semiconductor substrate;

an insulating layer formed above the metal circuitry layer;

a plurality of reflective imaging surfaces formed above the insulating layer; and

a plurality of vias between the metal layer and each of the imaging surfaces; and

wherein the vias establish parallel electrical connections to each imaging surface; and

the vias of each imaging surface occupy no more than 25% of the surface area of the imaging surface.

32. (new) The LCD array of claim 1, wherein:

all of the vias of each imaging surface lie on a single line; and

the vias are symmetrically arranged about an axis perpendicularly bisecting the single line.

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33. (new) The method of claim 9, wherein said step of placing a plurality of vias under each of a plurality of mirrors further comprises:

placing all of the vias under each mirror on a single line; and
arranging the vias on the line such that the vias are symmetric about an axis
perpendicularly bisecting the line.

34. (new) The LCD array of claim 11, wherein providing a plurality of vias further comprises:
positioning the vias such that all of the vias of each reflective imaging surface lie on a
single line and are symmetric about an axis perpendicularly bisecting the line.

35. (new) The LCD array of claim 1, wherein the vias of each imaging surface occupy no more
than 5% of the surface area of the imaging surface.

36. (new) The method of claim 9, wherein the vias of each mirror occupy no more than 5% of
the surface area of the mirror.

37. (new) The LCD array of claim 11, wherein the vias of each imaging surface occupy no more
than 5% of the surface area of the imaging surface.

38. (new) The LCD array of claim 1, wherein the LCD array is suitable for use in a video
projection system.

39. (new) The method of claim 9, wherein the LCD array is suitable for use in a video projection
system.

40. (new) The method of claim 11, wherein said LCD array is suitable for use in a video
projection system.

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41. (new) An LCD array comprising:

- a semiconductor substrate;
- a metal circuitry layer formed above the semiconductor substrate;
- an insulating layer formed above the metal circuitry layer;
- a plurality of reflective imaging surfaces formed above the insulating layer; and
- exactly two vias between the metal layer and each of the imaging surfaces; and
- wherein each of the vias passes through the insulating layer.

42. (new) The LCD array of claim 1, wherein the smallest distance between the nearest vias of any two adjacent imaging surfaces is at least $\frac{1}{2}P$, where P is the distance between corresponding features of adjacent imaging surfaces.

43. (new) The LCD array of claim 1, wherein:

- the vias are arranged along a diagonal of the imaging surface; and
- the spacing between each via of each imaging surface along the diagonal is given by the formula $\frac{P\sqrt{2}}{2}$, where P is the distance between corresponding features of adjacent imaging surfaces.

44. (new) The LCD array of claim 9, wherein the step of placing the vias under each of a plurality of mirrors includes placing the vias such that smallest distance between the nearest vias of any two adjacent mirrors is at least $\frac{1}{2}P$, where P is the distance between corresponding features of adjacent mirrors.

45. (new) The method of claim 9, wherein:

- the step of placing said vias under each of a plurality of mirrors includes arranging the vias along a diagonal of each of the mirrors; and

the spacing between each via of each mirror along the diagonal is given by the formula $\frac{P\sqrt{2}}{2}$, where P is the distance between corresponding features of adjacent mirrors.

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46. (new) The LCD array of claim 11, wherein the smallest distance between the nearest vias of any two adjacent imaging surfaces is at least $\frac{1}{2}P$, where P is the distance between corresponding features of adjacent imaging surfaces.

47. (new) The LCD array of claim 11, wherein:

the vias are arranged along a diagonal of the imaging surface; and

the spacing between each via of each imaging surface along the diagonal is given by the

formula $\frac{P\sqrt{2}}{2}$, where P is the distance between corresponding features of adjacent imaging surfaces.